

Certified Athletic Trainers in Secondary Schools: Report of the Council on Scientific Affairs, American Medical Association

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Background: In June 1997, the American Academy of Pediatrics introduced a resolution asking the American Medical Association (AMA) to support efforts to place certified athletic trainers in all secondary schools. The AMA Council on Scientific Affairs studied that resolution and presented this report to the AMA House of Delegates in June 1998.

Objective: To identify the professional responsibilities, educational requirements, and current use of certified athletic trainers in the prevention and care of high school sports injuries.

Data Sources: MEDLINE and HealthSTAR databases were searched for English-language articles published from 1980 to 1998. Additional references were derived from references in pertinent articles, communication with experts, and the Internet sites of athletic training and sports medicine associations.

Data Synthesis: One in 5 of approximately 6 million adolescents who participate in high school sports each year sustains

a sport-related injury. Most of these injuries are minor and occur during practices rather than competitions. Approximately 1 of every 100,000 high school athletes will sustain a catastrophic injury. About 35% of US high schools use the services of a certified athletic trainer, who, under a physician's supervision, is responsible for the prevention and care of athletic injuries and coordination of the school athletic health program.

Conclusions/Recommendations: Emphasis should be given to ensuring the health, safety, and well-being of participants in high school sports. Whereas most high school sports injuries are minor, adequately trained personnel should be present on site to ensure that such injuries are recognized early, treated immediately, and allowed to heal properly, thereby reducing the risk of more serious injury or reinjury. For such care, team physicians and coaches should have the assistance of a certified athletic trainer.

Key Words: athletic injuries, athletic training, high school sports, injury prevention, adolescent health

Participation in high school sports is an important means by which adolescents can become more physically active and learn to develop and maintain strength, endurance, and overall fitness. Injury is an inherent risk of such participation. To enhance safety and reduce injury risk, some high school administrators use the services of a certified athletic trainer who, under the supervision of a physician, provides medical care to student-athletes and coordinates the school athletic health program. In 1997, the American Academy of Pediatrics introduced a resolution to the American Medical Association (AMA) House of Delegates asking the AMA to encourage efforts to place certified athletic trainers in all secondary schools. The House of Delegates referred the resolution to the AMA Board of Trustees and then to the Council on Scientific Affairs for further study. The AMA Council on Scientific Affairs presented the following report to the AMA House of Delegates in June 1998.

METHODS

Information for this report was derived from searches of the MEDLINE and HealthSTAR databases and the Internet sites of athletic training and sports medicine associations. MEDLINE and HealthSTAR were searched for English-language articles published from 1980 to 1998 using the key words "athletic injuries," "athletic training," "high school sports," "injury prevention," and "adolescent health." Additional references were derived from a manual search of pertinent articles, journals, and sports medicine textbooks. Information also was obtained through direct inquiries with experts in sports medicine and athletic training, including representatives of the American Academy of Pediatrics, American College of Sports Medicine, Centers for Disease Control and Prevention, Joint Commission on Sports Medicine and Science, National Association for Sport and Physical Education, National Athletic Trainers' Association, and National Federation of High School Associations. The report was reviewed externally and by the Council on Scientific Affairs.

EPIDEMIOLOGY OF HIGH SCHOOL SPORTS INJURIES

During the 1996-1997 school year, more than 6 million adolescents participated in high school sports programs.¹

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Whereas injury is an inherent risk of participating in interscholastic sports, the nature and magnitude of this risk are uncertain. Currently, there are no federal or state requirements for reporting high school sports injuries. Consequently, data are lacking for a complete assessment of the epidemiology of these injuries. While some data are available to address the type and frequency of injuries in selected sports, information is limited to evaluate the risk factors involved and the effectiveness of therapeutic and preventive interventions. Data collection on these issues is hampered by nonstandardized reporting formats and a lack of consensus on definitions and terminology for documenting and reporting high school sports injuries.

Despite the lack of any state or national reporting systems, several researchers have documented the relatively high occurrence of injuries in interscholastic sports.²⁻⁶ The most comprehensive national statistics are available from surveillance studies of the National Athletic Trainers' Association (NATA). Based on research conducted from 1986-1989, the NATA estimates that 1.3 million US high school athletes (1 in 5) are injured each year.⁶ About 70% to 75% of these injuries are minor (precluding participation for 7 days or fewer). Although they vary somewhat by sport, the most common injuries are sprains, strains, and contusions, typically to the lower extremities. More than 60% of these injuries occur during practices rather than competitions. In 1995, the NATA began a 3-year surveillance study to follow up results of the 1986-1989 study and to determine the characteristics of injuries in 10 high school sports. The 1986-1989 study projected national injury estimates from a survey of 3 sports: football, wrestling, and basketball.

Data collected over the past 15 years indicate the risk of catastrophic injury in high school sports is approximately 1 in every 100,000 participants. Catastrophic injuries include fatalities, nonfatal injuries associated with permanent severe functional disability, and severe injuries with no permanent functional paralysis (eg, fractured cervical vertebra with no paralysis).⁷

PROVIDING MEDICAL CARE FOR INJURED ATHLETES

Although most high school sports injuries are minor, adequately trained personnel should be present on site to ensure that such injuries are recognized early, treated immediately, and allowed to heal properly, thereby reducing the risk of more serious injury or reinjury. Prompt recognition and adherence to proper emergency procedures can reduce the long-term effects of an injury and shorten an athlete's recovery time. Providing the necessary daily supervision to detect and treat sports injuries can be difficult and requires a team approach to maximize the use of available medical resources. Ideally, this involves the coordinated efforts of a team physician, certified athletic trainer, and coach, who must work together to provide quality, comprehensive care to all sports participants.^{3,8-10}

Some high schools use the services of a voluntary team physician to provide medical care to high school athletes. It is

impossible, however, for this individual to meet the demands of multiple games and practices. Many team physicians attend only varsity football games; they seldom attend other school athletic contests and rarely attend practices, where an appreciable number of injuries occur.¹¹⁻¹³ To fill this void, some school administrators employ a certified athletic trainer to provide on-site emergency health care and coordinate the school's athletic health program. The athletic trainer also can assume an important role as a liaison to the team physician, athletes, and coaches.

Due to budget constraints, many high schools are unable to hire or contract the services of a certified athletic trainer.^{3,12} According to an NATA membership survey, during the 1993-1994 school year, about 7600 US high schools (35%) had some form of ongoing direct access to a certified athletic trainer (Teresa Foster Welch, Director of Marketing Communications, NATA, personal communication, December 1997). Recent surveys of the National Federation of State High School Associations found that, during the 1996-1997 school year, only 13 states reported that more than 50% of their state high schools had a certified athletic trainer on staff for football;¹⁴ only 6 states reported that more than 50% of their high schools had a certified athletic trainer on staff for basketball.¹⁵

Without the services of an athletic trainer, coaches often must assume responsibility for the prevention, care, and rehabilitation of athletic injuries. Studies suggest that some coaches lack sufficient knowledge about these topics and may be inadequately prepared to recognize and respond to medical emergencies.^{11,16-19} Currently, only 28 states require an educational program in sports first aid and safety for high school coaches.¹⁹

DUTIES AND RESPONSIBILITIES OF ATHLETIC TRAINERS

Injury prevention and the reduction of further injury are primary responsibilities of the athletic trainer. Under the supervision of the team physician, the athletic trainer designs, coordinates, and implements a comprehensive athletic training and injury prevention program. This includes providing daily treatments (eg, ultrasound, ice massage, electric stimulation) and preventive measures (eg, taping, wrapping, bracing) for athletes for practices and games. To perform these duties proficiently, athletic trainers must maintain competency in the following areas:^{10,13,20}

- prevention of athletic injuries, including assessment of an athlete's physical readiness to participate;
- early recognition, evaluation, and care of athletic injuries, including accurate assessment of the type and severity of injuries and obtaining pertinent medical histories;
- rehabilitation and reconditioning to minimize the risk of reinjury and to return the athlete to activity as soon as possible;
- health care administration, including medical and insurance record keeping, documentation and reporting of injuries,

writing of policies and procedures, budgeting, and referral of injured athletes to appropriate medical professionals when indicated; and

- education and counseling of coaches, parents, student athletic trainers, and athletes.

EDUCATION AND CERTIFICATION OF ATHLETIC TRAINERS

Since 1991, the AMA has recognized athletic training as an allied health profession.²¹ Athletic trainers acquire professional skills and expertise in the prevention and care of sports-related injuries through structured academic and practical experiences. This includes extensive coursework in the basic sciences with core studies in human anatomy and physiology, kinesiology or biomechanics, psychology, personal and community health, nutrition, exercise physiology, first aid and emergency care, prevention and evaluation of athletic injuries and illnesses, therapeutic rehabilitation, use of treatment modalities, and health care administration.²¹ Candidates for certification as an athletic trainer have a bachelor's degree in athletic training, exercise science, or a related field and are required to participate in extensive clinical affiliations under appropriate supervision. To become certified, individuals must complete the following core requirements as stipulated by the NATA Board of Certification (NATABOC):²²

- clinical athletic training experience (at least 25% of which must be attained in actual practice and game coverage in one or more of the following sports: football, soccer, hockey, wrestling, basketball, gymnastics, lacrosse, volleyball, rugby, and rodeo);
- proof of graduation at the baccalaureate level at an accredited college or university;
- proof of current certification in cardiopulmonary resuscitation (American Red Cross, American Heart Association, National Safety Council, or Emergency Medical Technician equivalent);
- endorsement of certification application by an NATABOC-certified athletic trainer; and
- successful completion of a written examination, written simulation (an interactive and decision-making-based examination), and practical examination.

An individual may qualify for certification in 2 ways: (1) by graduating from an undergraduate or graduate institution that has an educational program accredited through the Commission on Accreditation of Allied Health Education Programs, or (2) by completing an internship (note that effective January 1, 2004, the internship route to certification will be eliminated). For each of these options, the NATABOC defines a core curriculum of subject matter and specifies the number of hours of athletic training experience that must be obtained under the supervision of an NATABOC-certified athletic trainer. Upon successful completion of these requirements, the certified athletic trainer is recognized by the designation "ATC." Athletic trainers must also meet NATABOC-specified continuing

education requirements to maintain expertise and acquire proficiency in new athletic training techniques and treatment protocols. As of 1998, more than 16 000 athletic trainers were certified nationally by the NATABOC.²³

REGISTRATION AND LICENSURE

Many states regulate athletic trainers to assure the public that these individuals are properly qualified to care for injured athletes. State laws establish legal parameters under which athletic trainers can operate and may define the specific clientele and services that can be provided in various work settings.^{10,24} More than 30 states have legislation that requires the licensure, certification, or registration of athletic trainers,²⁵ but statutes vary regarding the qualifications and requirements for regulation.²⁴ Despite such variation, nearly all states accept successful completion of the NATABOC examination as a basis for obtaining licensure.¹⁰

LIABILITY ISSUES

Because injury is an inherent risk of athletic competition, high school officials need to address efforts to reduce the total number and severity of sport-related injuries and to provide adequate medical support to treat these injuries. Schools that require a coach to assume the additional responsibility of caring for injured athletes should consider the potential impact on the school system and athletic program from even a single settlement in response to an injury due to improper care and management by a coach who is not appropriately trained in emergency medical procedures. To minimize liability for athletic injuries, a comprehensive risk management plan is needed to ensure that equipment is maintained properly, appropriate emergency plans are established, facilities are constructed properly, and qualified personnel are available to treat athletic injuries. Athletic trainers can have an important role in the development and implementation of this risk management plan.

As allied health professionals, athletic trainers must be aware of their duty to provide care consistent with state laws and must meet that duty of care within established policies and standards of practice.^{26,27} The standard of care in a sport injury situation is that of the law of negligence, which is defined as what another minimally competent individual, educated and practicing in that profession, would have done in the same or similar circumstance to protect an individual from harm or further harm. An individual responsible for providing athletic training services could be held to the standard of care expected of an NATABOC-certified athletic trainer. In states with specific registration, certification, or licensure laws, valid NATABOC certification and registration or licensure would be minimal protection against litigation for individuals providing athletic training services.^{10,27} Being properly licensed and practicing within established standards of practice are strong safeguards against litigation.¹⁰

COMMENT

The prevention and care of high school sports injuries is an important health issue. Although many high schools have coaching staffs dedicated to teaching appropriate sports skills and tactics, it cannot be assumed that all coaches are adequately trained or sufficiently motivated to monitor and treat the injuries that occur during practices and competitions. Few, if any, high schools provide daily physician coverage to meet these needs. To provide such coverage, coaches need the assistance of certified athletic trainers who can recognize and manage the wide variety of injuries and medical conditions that occur among high school athletes. Certified athletic trainers can provide more continuous and comprehensive on-site medical coverage, particularly at practices, where most injuries occur and when team physicians are seldom available. Because it is unlikely that athletic trainers will be available for all practices and competitions, coaches also should be trained to recognize and respond appropriately to injured athletes. Recent consensus standards define the skills, knowledge, and competencies that can be expected of high school coaches in the prevention and care of athletic injuries.²⁸

While the hiring of a certified athletic trainer makes good sense from a risk management perspective, more empirical data are needed for a scientific assessment of the impact of athletic trainers on the prevention, treatment, and rehabilitation of sports injuries. Well-controlled studies are needed to evaluate risk factors for high school sports injuries and the effectiveness of athletic training methods and modalities, as well as research to address whether certification and state regulation affect injury occurrences and outcomes. To improve knowledge on such issues, the NATA is sponsoring a 3-year project, called the "Athletic Training Outcomes Assessment," which aims to determine patient satisfaction with and the effectiveness of athletic training methods.²⁹

Current medical and legal circumstances require that a comprehensive sports medicine program be implemented in high schools to replace the more traditional approach of providing medical coverage only at athletic events. High school administrators need to support efforts and activities to develop a well-organized and integrated program to protect all student-athletes and provide the best possible care for injured athletes during both competitions and practices. Although all high schools may not have the resources to implement a sophisticated sports medicine program, all high schools can designate an individual to work with the team physician to prevent injuries, provide medical care, and rehabilitate injured athletes. Ideally, this person is an NATABOC-certified athletic trainer who has the education and training to provide appropriate care for injured athletes and the administrative training to conduct the athletic health care program. By hiring an NATABOC-certified athletic trainer, school administrators, team physicians, coaches, and parents have assurance that an individual is on staff who has the knowledge, skills, responsibility, and commitment to protect the health, safety, and well-being of all sports participants.

RECOMMENDATIONS

In June 1998, the AMA House of Delegates adopted the following statements as policy:

1. The AMA believes that (a) the Board of Education and the Department of Health of the individual states should encourage that an adequate Athletic Medicine Unit be established in every school that mounts a sports program; (b) the Athletic Medicine Unit should be composed of an allopathic or osteopathic physician director with unlimited license to practice medicine, an athletic health coordinator (preferably an NATABOC-certified athletic trainer), and other necessary personnel; (c) the duties of the Athletic Medicine Unit should be prevention of injury, the provision of medical care with the cooperation of the family's physician and others of the health care team of the community, and the rehabilitation of the injured; (d) except in extreme emergencies, the selection of the treating physician is the choice of the parent or guardian and any directed referral therefore requires their consent; (e) Athletic Medicine Units should be required to submit complete reports of all injuries to a designated authority; and (f) medical schools, colleges, and universities should be urged to cooperate in establishing education programs for athletic health coordinators (NATABOC-certified athletic trainers) as well as continuing medical education and graduate programs in Sports Medicine.
2. The AMA urges high school administrators, athletic directors, and coaches to work with local physicians, medical societies, and medical specialty societies, as well as government officials and community groups, to undertake appropriate measures to ensure funding to provide the services of a certified athletic trainer to all high school athletes.
3. Recognizing that not all high schools have the resources to procure the services of a certified athletic trainer and further recognizing that athletic trainers cannot be present at all practices and competitions, the AMA encourages high school administrators and athletic directors to ensure that all coaches are appropriately trained in emergency first aid and basic life support.

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